

## **IN THE CLAIMS:**

This listing of claims will replace all prior versions, and listing, of claims in the application:

### **Listing of Claims:**

Claims 1-22 (Canceled)

23. (Currently Amended): An integrated system for aircraft vortex safety, ~~the system~~ comprising:

an informational subsystem of an aircraft parameters capable of receiving, saving and providing the user with information on the aircraft configuration, position, flight velocity, and ~~altitude~~ attitude;

an informational subsystem of vortex generators capable of receiving, saving and providing the user with information from different available sources on vortex generator configuration, position, flight velocity, and ~~altitude~~ attitude for all vortex generators located in the aircraft vicinity;

an informational subsystem of ambient parameters capable of receiving, saving and providing the user with information on ambient conditions in the aircraft vicinity at current and forecasted time moments;

a subsystem warning the user against a risk of the aircraft encounter with vortex generator wake vortices at the forecasted time;

a user subsystem capable of receiving, saving and providing the user with information from other subsystems and forming an instructive signal for the aircraft evasion maneuver

ensuring aircraft evasion from a vortex generator danger areas during a chosen danger criterion by the user delay time after the user receives the warning signal about a risk of the aircraft encounter with vortex generator wake vortices at the forecasted time;

a communication subsystem ensuring integration of the subsystems into a united complex, and

said informational subsystem of the aircraft parameters ensures receipt, processing, saving, and transmitting information to the warning subsystem at least on the aircraft configuration, coordinates and ~~altitude~~ attitude in the inertial frame, on the aircraft velocity and angular rate components in the aircraft frame;

said informational subsystem of vortex generators ensures receipt, processing, saving, and transmitting information to the user at least on the vortex generator types, coordinates and ~~altitude~~ attitude, velocity and angular rate components in the inertial frame;

said informational subsystem of ambient parameters ensures receipt, processing, saving, and transmitting information to the user at least on a wind velocity components in the inertial frame at different ~~altitudes~~ attitudes in the region of the wake vortex presence, as well as on an ambient turbulence;

said warning subsystem informing the user on a possibility of the aircraft encountering with the vortex generator danger areas performs at least calculation of the vortex generator wake vortex position, and intensity, and danger areas, the area of the aircraft forecasted positions at the forecasted time and directs to the user subsystem information on a possibility of the aircraft encountering with the vortex generator wake vortex danger areas at the forecasted time; and

said user subsystem receives, processes, saves and indicates the information from the warning subsystem at least on a nulling of the distance from the area of the aircraft forecasted positions to the vortex generator wake vortex danger area at the forecasted time and forms a signal indicating the change of the aircraft position providing the increase of the above mentioned distance;

wherein said warning subsystem informing the user on the possibility of the aircraft encountering with the vortex generator wake vortex danger areas at the forecasted time includes a system comprising:

an aircraft parameters tracker capable of receiving information on the aircraft configuration, position, coordinates, and ~~altitude~~ attitude in the inertial frame at the current time;

a vortex generator tracker capable of receiving information on the vortex generator position, geometrical and weight characteristics, as well as on the motion parameters in the inertial frame at the current time;

a memory unit capable of saving information on the vortex generator position and motion parameters in the inertial frame;

an ambient parameters detector capable of receiving information on the environmental parameters in the space of the collocation of the aircraft and vortex generator at the current time;

a wake vortex tracker capable of determining the vortex generator wake vortices in the form of ~~[[the]]~~ a set of the vorticity center paths in the inertial frame;

a memory device capable of storing information on the vortex generator wake vortex path point coordinates in the form of the set of the vorticity region centers and wake vortex intensity in the inertial frame;

a device for selection of ~~[[the]]~~ a delay time capable of calculating the time period within which the aircraft has at least a possibility of a flight evasive maneuver providing evasion of the aircraft from the generator wake danger area after the signal warning against the possibility of wake encounter has been received;

a device for simulation of ~~[[the]]~~ a control plane capable of calculating the delay distance, which equals to the distance covered by the aircraft during the delay time, modeling the control plane situated in front of the aircraft perpendicular to its flight direction at the delay distance, and determining the forecasted time necessary for the aircraft to gain the control plane in the inertial frame;

a device for determination of the danger area parameters capable of determining the geometrical characteristics of the generator wake vortex danger areas in the form of the set of the danger areas of the generator vorticity regions at the forecasted time;

a forecasting device capable of determining the generator wake path in the form of the set of the generator vorticity region centers with respect to the inertial frame and of the intensity of the generator wake vortices at the forecasted time;

a device for calculation of the intersection points capable of determining the coordinates of the intersection points of ~~[[the]]~~ a generator wake vortex trajectory and the control plane at the forecasted time of the aircraft flight through it;

an areas and regions forming device capable of forming around the intersection point of the wake vortex path and the control plane of the wake vortex danger area in the form of

[[the]] a set of the generator vorticity danger areas, where the entering aircraft may have [[the]] a flight ~~parameters~~ parameter exceeding the admissible limits, forming in the control plane of the area of the aircraft forecasted positions at the forecasted time of the aircraft intersection with the control plane with due regard to [[the]] flight regulations, forming around the region of the aircraft forecasted positions of [[the]] an alert area, the information on the entrance of the wake danger areas into the warning area will be provided to the user;

a transformation unit capable of calculating the coordinates of the area of the aircraft forecasted positions, of the warning area and of the wake vortex danger area in the aircraft frame;

a first intersection conditional test unit capable of calculating the distance from the alert area to the wake vortex danger area and marking its nulling;

a second intersection conditional test unit capable of calculating the distance from the area of the aircraft forecasted positions to the wake vortex danger area and marking its nulling;

a first indication unit capable of forming and transmitting the nulling signal for the distance from the area of the aircraft forecasted positions to the vortex generator wake vortex danger area; and

a second indication unit capable of indicating the nulling of the distance from the warning area to the to the vortex generator wake vortex danger area.

24. (Currently Amended): The system as claimed in claim 23, wherein:  
said aircraft informational subsystem is realized on the basis of the aircraft standard onboard equipment and/or equipment of ground-based, seaborne and/or aerospace navigation

complexes;

said vortex generator informational subsystem is realized on the basis of the aircraft standard onboard equipment and/or a vortex generator standard equipment, and/or equipment of the air traffic control for ground, sea, or aerospace complexes;

said environmental informational subsystem is realized on the basis of the aircraft standard onboard equipment and/or of standard meteorological equipment for the air traffic control system or of equipment in the ground-based, sea and/or aerospace navigation complexes;

said warning subsystem informing the user on the possibility of the aircraft encountering with the vortex generator wake vortex danger areas is realized on the basis of a user computer software and/or onboard unified indication systems and/or indication systems of air traffic control services or ground-based equipment in seaborne and/or aerospace navigation complexes at a site of a flight controller;

said user subsystem is realized on the basis of the user computer and navigational systems belonging to the aircraft onboard standard equipment and/or ground-based or seaborne navigation complexes at the site of the flight controller; and

said commutation subsystem is realized on the basis of data-transmission communication systems and/or onboard multiplex channels of informational exchange, and the user is the aircraft and/or the air traffic control services and the instructive signal is realized in the aircraft flight control system.

25. (Canceled)

26. (Currently Amended): The system as claimed in claim 23, wherein:

said aircraft parameters tracker is capable of receiving information at least on the aircraft configuration, coordinates, flight velocity, pitch, yaw and roll angles; said vortex generator tracker is capable of receiving information at least on the vortex generator type, flight, velocity, angular rates, and coordinates of the generator path points;

said ambient parameters detector is capable of receiving information at least on the magnitude and direction of the local wind velocity, the ~~altitude~~ attitude, wind profile, ambient turbulence intensity, and the underlying terrain type;

said wake vortex tracker is capable of determining the vortex generator wake vortex path in the form of the set of the generator vorticity area centers and the wake vortex intensity on the basis of the saved information on the vortex generator type, velocity, angular rates, and coordinates of the generator path points;

said device for simulation of a control plane is capable of modeling the control plane on the basis of the information on the aircraft position, ~~altitude~~ attitude, velocity, and the delay time;

said device for determination of the danger area parameters is capable of determining the geometrical characteristics of the generator wake vortex danger areas on the basis of the saved information on a set of the trajectory point coordinates and intensity of the generator wake vortices, as well as of the information on the aircraft configuration, position, velocity, and angular rates in the inertial frame;

said forecasting device is capable of determining the vortex generator wake vortex path and intensity on the basis of the information on the wake path in the form of a set of

trajectories of the generator vorticity region centers in the inertial frame and of the wake intensity;

said device for calculation of the intersection points is capable of determining the coordinates of the intersection points of the generator wake vortex trajectory and the control plane on the basis of the information on the coordinates of the control plane and the wake vortex trajectory in the inertial frame at the forecasted time of the aircraft flight through it;

said areas and regions forming device is capable of forming the wake vortex danger area, area of the aircraft forecasted positions and the alert area on the basis of the information of the coordinates of the intersection point of the generator wake vortex path and the control plane at the forecasted time, of the information on the geometrical characteristics of the danger area in the form of the set of the generator vorticity danger areas, of the information on the aircraft position, ~~altitude~~ attitude, velocity and angular rates with due regard for the flight regulations in the inertial frame; and

said transformation unit is capable of calculating the coordinates of the area of the aircraft forecasted positions, of the alert area, and of the wake vortex danger area in the aircraft frame on the basis of information on the coordinates of the area of the aircraft forecasted positions, of the alert area, and of the wake vortex danger area, as well as of information on the aircraft coordinates and ~~altitude~~ attitude, preferably on the pitch, yaw and roll angles in the inertial frame at the current time.

27. (Currently Amended): The system as claimed in claim 23, wherein said warning subsystem comprises:

said vortex generator tracker;



said memory [[units]] unit;

said wake vortex tracker;

said device for determination of the danger area parameters;

said forecasting device;

said device for calculation of the intersection points;

said areas and regions forming device;

said first and second units testing the intersection conditions; and

signal devices capable of simultaneous functioning with respect of each of said vortex generators located in the vicinity of the aircraft.

28. (Previously Presented): The system as claimed in claim 23, wherein said device for selection of the delay time in the warning subsystem is realized with the possibility of the current correction of the delay time, said areas and regions forming device realized with the possibility of the current correction of the coordinates of the area of the aircraft forecasted positions and with the possibility of the current correction of the coordinates of the alert area, and said corrections are carried out in a manual, semiautomatic, or automatic mode.

29. (Currently Amended): The system as claimed in claim 23, wherein said user subsystem comprises a device for visualization for the user of information on the location of the area of the aircraft forecasted positions and the vortex generator wake danger areas in a control surface.

30. (Currently Amended) The system as claimed in claim 23, wherein said user subsystem comprises an indication device and an alarm indication device chosen from the group consisting of visual, audio and tactile indication devices.

31. (Currently Amended): The system as claimed in claim 23, wherein an aircraft admissible roll is chosen as a hazard criterion for the vortex generator wake vortices.

32. (Currently Amended): The system as claimed in claim 23, wherein the aircraft rolling moment induced by the vortex generator wake vortices is chosen as the hazard criterion for the vortex generator wake vortices.

33. (Previously Presented): The system as claimed in claim 23, wherein said wake vortex tracker and said forecasting device in said warning subsystem comprise a programmable component, and said device for determination of the danger area parameters is realized in a programmable component software.

34. (Currently Amended): The system as claimed in claim 23, wherein devices and units of said warning subsystem and said user subsystem have a different localization.

35. (Currently Amended): The system as claimed in claim 23, wherein said user subsystem comprises a system for storage of information on the delay time, coordinates of a control surface, area of the aircraft forecasted positions and the vortex generator danger areas

at least within the time of alarm indication of the nulling event for the distance from the area of the aircraft forecasted positions to the danger area of the vortex generator wake vortices.

36. (Currently Amended): The system as claimed in claim 28, wherein said warning subsystem includes a device for determination of the vortex generator danger area parameters, said device comprising:

- a unit for an aircraft schematization capable of calculating the set of the aircraft geometrical characteristics necessary for evaluation of additional aerodynamic forces and moments induced by the generator wake vortices and acting on the aircraft on the basis of information on the aircraft configuration, coordinates, flight velocity, angles of pitch, yaw and roll;

- a unit for evaluation of additional aerodynamic forces and moments acting on the aircraft at a given point and induced by the generator wake vortices, capable of calculating them on the basis of the saved information on the paths of the wake vortex points in the form of a set of the trajectories of the vorticity area centers and the intensity of the generator wake vortices in the inertial frame, of the information on the aircraft configuration, position, flight velocity, angular rate in the inertial frame, and on the aircraft geometry;

- a unit for estimation of a hazard level of the aerodynamic perturbations at the given point capable of estimating the hazard level on the basis of criteria chosen by the user;

- a unit for determination of the points where the aircraft aerodynamic forces and moments induced by the generator wake vortices are dangerous capable of determining the coordinates of the points of the danger areas on the basis of their selection under the hazard criteria chosen by the user; and

a unit for evaluation of the geometrical characteristics of the wake vortex danger areas capable of calculating them on the basis of information on the coordinates of points of the danger areas.

37. (Currently Amended) The system as claimed in claim 36, wherein said unit for determination of the wake vortex danger area geometrical characteristics in said warning subsystem in a device for determination of the danger area parameters is capable of approximating the danger area boundary.

38. (Currently Amended) The system as claimed in claim 29, wherein said warning subsystem includes a device for determination of the vortex generator danger area parameters, said device comprising:

a unit for an aircraft schematization capable of calculating the set of the aircraft geometrical characteristics necessary for evaluation of additional aerodynamic forces and moments induced by the generator wake vortices and acting on the aircraft on the basis of information on the aircraft configuration, coordinates, flight velocity, angles of pitch, yaw and roll;

a unit for evaluation of additional aerodynamic forces and moments acting on the aircraft at a given point and induced by the generator wake vortices, capable of calculating them on the basis of the saved information on the paths of the wake vortex points in the form of a set of trajectories of the vorticity area centers and the intensity of the generator wake vortices in the inertial frame, of the information on the aircraft configuration, position, flight velocity, angular rate in the inertial frame, and on the aircraft geometry;

a unit for estimation of a hazard level of the aerodynamic perturbations at the given point capable of estimating the hazard level on the basis of criteria chosen by the user;

a unit for determination of the points where the aircraft aerodynamic forces and moments induced by the generator wake vortices are dangerous capable of determining the coordinates of the points of the danger areas on the basis of their selection under the hazard criteria chosen by the user; and

a unit for evaluation of the geometrical characteristics of the wake vortex danger areas capable of calculating them on the basis of information on the coordinates of points of the danger areas.

39. (Currently Amended): The system as claimed in claim 38, wherein a unit for determination of the wake vortex danger area geometrical characteristics in said warning subsystem in said device for determination of the danger area parameters is capable of approximating the danger area boundary.

40. (Currently Amended): The system as claimed in claim 30, wherein said warning subsystem includes a device for determination of the vortex generator danger area parameters, said device comprising:

a unit for an aircraft schematization capable of calculating the set of the aircraft geometrical characteristics necessary for evaluation of additional aerodynamic forces and moments induced by the generator wake vortices and acting on the aircraft on the basis of information on the aircraft configuration, coordinates, flight velocity, angles of pitch, yaw and roll;

a unit for evaluation of additional aerodynamic forces and moments acting on the aircraft at a given point and induced by the generator wake vortices, capable of calculating them on the basis of the saved information on the paths of the wake vortex points in the form of a set of trajectories of the vorticity area centers and the intensity of the generator wake vortices in the inertial frame, of the information on the aircraft configuration, position, flight velocity, angular rate in the inertial frame, and on the aircraft geometry;

a unit for estimation of a hazard level of the aerodynamic perturbations at the given point capable of estimating the hazard level on the basis of criteria chosen by the user;

a unit for determination of the points where the aircraft aerodynamic forces and moments induced by the generator wake vortices are dangerous capable of determining the coordinates of the points of the danger areas on the basis of their selection under the hazard criteria chosen by the user; and

a unit for evaluation of the geometrical characteristics of the wake vortex danger areas capable of calculating them on the basis of information on the coordinates of points of the danger areas.

41. (Currently Amended): The system as claimed in claim 40, wherein said unit for determination of the wake vortex danger area geometrical characteristics in said warning subsystem in a device for determination of the danger area parameters is capable of approximating the danger area boundary.

42. (Currently Amended): The system as claimed in claim 31, wherein said warning subsystem includes a device for determination of the vortex generator danger area parameters, said device comprising:

a unit for an aircraft schematization capable of calculating the set of the aircraft geometrical characteristics necessary for evaluation of additional aerodynamic forces and moments induced by the generator wake vortices and acting on the aircraft on the basis of information on the aircraft configuration, coordinates, flight velocity, angles of pitch, yaw and roll;

a unit for evaluation of additional aerodynamic forces and moments acting on the aircraft at a given point and induced by the generator wake vortices, capable of calculating them on the basis of the saved information on the paths of the wake vortex points in the form of a set of trajectories of the vorticity area centers and the intensity of the generator wake vortices in the inertial frame, of the information on the aircraft configuration, position, flight velocity, angular rate in the inertial frame, and on the aircraft geometry;

a unit for estimation of a hazard level of the aerodynamic perturbations at the given point capable of estimating the hazard level on the basis of criteria chosen by the user;

a unit for determination of the points where the aircraft aerodynamic forces and moments induced by the generator wake vortices are dangerous capable of determining the coordinates of the points of the danger areas on the basis of their selection under the hazard criteria chosen by the user; and

a unit for evaluation of the geometrical characteristics of the wake vortex danger areas capable of calculating them on the basis of information on the coordinates of points of the danger areas.

43. (Currently Amended): The system as claimed in claim 42, wherein said unit for determination of the wake vortex danger area geometrical characteristics in said warning subsystem in a device for determination of the danger area parameters is capable of approximating the danger area boundary.

44. (Currently Amended): The system as claimed in claim 32, wherein said warning subsystem includes a device for determination of the vortex generator danger area parameters, said device comprising:

- a unit for an aircraft schematization capable of calculating the set of the aircraft geometrical characteristics necessary for evaluation of additional aerodynamic forces and moments induced by the generator wake vortices and acting on the aircraft on the basis of information on the aircraft configuration, coordinates, flight velocity, angles of pitch, yaw and roll;

- a unit for evaluation of additional aerodynamic forces and moments acting on the aircraft at a given point and induced by the generator wake vortices, capable of calculating them on the basis of the saved information on the paths of the wake vortex points in the form of a set of trajectories of the vorticity area centers and the intensity of the generator wake vortices in the inertial frame, of the information on the aircraft configuration, position, flight velocity, angular rate in the inertial frame, and on the aircraft geometry;

- a unit for estimation of a hazard level of the aerodynamic perturbations at the given point capable of estimating the hazard level on the basis of criteria chosen by the user;



a unit for determination of the points where the aircraft aerodynamic forces and moments induced by the generator wake vortices are dangerous capable of determining the coordinates of the points of the danger areas on the basis of their selection under the hazard criteria chosen by the user; and

a unit for evaluation of the geometrical characteristics of the wake vortex danger areas capable of calculating them on the basis of information on the coordinates of points of the danger areas.

45. (Currently Amended): The system as claimed in claim 44, wherein said unit for determination of the wake vortex danger area geometrical characteristics in said warning subsystem includes a device for determination of the danger area parameters is capable of approximating the danger area boundary.

46. (Currently Amended): The system as claimed in claim 33, wherein said warning subsystem includes a device for determination of the vortex generator danger area parameters, said device comprising:

a unit for an aircraft schematization capable of calculating the set of the aircraft geometrical characteristics necessary for evaluation of additional aerodynamic forces and moments induced by the generator wake vortices and acting on the aircraft on the basis of information on the aircraft configuration, coordinates, flight velocity, angles of pitch, yaw and roll;

a unit for evaluation of additional aerodynamic forces and moments acting on the aircraft at a given point and induced by the generator wake vortices, capable of calculating

them on the basis of the saved information on the paths of the wake vortex points in the form of a set of trajectories of the vorticity area centers and the intensity of the generator wake vortices in the inertial frame, of the information on the aircraft configuration, position, flight velocity, angular rate in the inertial frame, and on the aircraft geometry;

a unit for estimation of a hazard level of the aerodynamic perturbations at the given point capable of estimating the hazard level on the basis of criteria chosen by the user;

a unit for determination of the points where the aircraft aerodynamic forces and moments induced by the generator wake vortices are dangerous capable of determining the coordinates of the points of the danger areas on the basis of their selection under the hazard criteria chosen by the user; and

a unit for evaluation of the geometrical characteristics of the wake vortex danger areas capable of calculating them on the basis of information on the coordinates of points of the danger areas.

47. (Currently Amended): The system as claimed in claim 46<sub>1</sub> wherein said unit for determination of the wake vortex danger area geometrical characteristics in said warning subsystem in a device for determination of the danger area parameters is capable of approximating the danger area boundary.

48. (Currently Amended): The system as claimed in claim 34<sub>1</sub> wherein said warning subsystem includes a device for determination of the vortex generator danger area parameters, said device comprising:

a unit for an aircraft schematization capable of calculating the set of the aircraft geometrical characteristics necessary for evaluation of additional aerodynamic forces and moments induced by the generator wake vortices and acting on the aircraft on the basis of information on the aircraft configuration, coordinates, flight velocity, angles of pitch, yaw and roll;

a unit for evaluation of additional aerodynamic forces and moments acting on the aircraft at a given point and induced by the generator wake vortices, capable of calculating them on the basis of the saved information on the paths of the wake vortex points in the form of a set of trajectories of the vorticity area centers and the intensity of the generator wake vortices in the inertial frame, of the information on the aircraft configuration, position, flight velocity, angular rate in the inertial frame, and on the aircraft geometry;

a unit for estimation of a hazard level of the aerodynamic perturbations at the given point capable of estimating the hazard level on the basis of criteria chosen by the user;

a unit for determination of the points where the aircraft aerodynamic forces and moments induced by the generator wake vortices are dangerous capable of determining the coordinates of the points of the danger areas on the basis of their selection under the hazard criteria chosen by the user; and

a unit for evaluation of the geometrical characteristics of the wake vortex danger areas capable of calculating them on the basis of information on the coordinates of points of the danger areas.

49. (Currently Amended): The system as claimed in claim 48, wherein said unit for determination of the wake vortex danger area geometrical characteristics in said warning

subsystem in a device for determination of the danger area parameters is capable of approximating the danger area boundary.

50. (Currently Amended): The system as claimed in claim 35, wherein said warning subsystem includes a device for determination of the vortex generator danger area parameters, said device comprising:

- a unit for an aircraft schematization capable of calculating the set of the aircraft geometrical characteristics necessary for evaluation of additional aerodynamic forces and moments induced by the generator wake vortices and acting on the aircraft on the basis of information on the aircraft configuration, coordinates, flight velocity, angles of pitch, yaw and roll;

- a unit for evaluation of additional aerodynamic forces and moments acting on the aircraft at a given point and induced by the generator wake vortices, capable of calculating them on the basis of the saved information on the paths of the wake vortex points in the form of a set of trajectories of the vorticity area centers and the intensity of the generator wake vortices in the inertial frame, of the information on the aircraft configuration, position, flight velocity, angular rate in the inertial frame, and on the aircraft geometry;

- a unit for estimation of a hazard level of the aerodynamic perturbations at the given point capable of estimating the hazard level on the basis of criteria chosen by the user;

- a unit for determination of the points where the aircraft aerodynamic forces and moments induced by the generator wake vortices are dangerous capable of determining the coordinates of the points of the danger areas on the basis of their selection under the hazard criteria chosen by the user; and

a unit for evaluation of the geometrical characteristics of the wake vortex danger areas capable of calculating them on the basis of information on the coordinates of points of the danger areas.

51. (Currently Amended): The system as claimed in claim 50, wherein said unit for determination of the wake vortex danger area geometrical characteristics in said warning subsystem in a device for determination of the danger area parameters is capable of approximating the danger area boundary.

52. (Currently Amended): The ~~System~~ system as claimed in claim 27, wherein said warning subsystem includes a device for determination of the vortex generator danger area parameters, said device comprising:

a unit for an aircraft schematization capable of calculating the set of the aircraft geometrical characteristics necessary for evaluation of additional aerodynamic forces and moments induced by the generator wake vortices and acting on the aircraft on the basis of information on the aircraft configuration, coordinates, flight velocity, angles of pitch, yaw and roll;

a unit for evaluation of additional aerodynamic forces and moments acting on the aircraft at a given point and induced by the generator wake vortices, capable of calculating them on the basis of the saved information on the paths of the wake vortex points in the form of a set of trajectories of the vorticity area centers and the intensity of the generator wake vortices in the inertial frame, of the information on the aircraft configuration, position, flight velocity, angular rate in the inertial frame, and on the aircraft geometry;

a unit for estimation of a hazard level of the aerodynamic perturbations at the given point capable of estimating the hazard level on the basis of criteria chosen by the user;

a unit for determination of the points where the aircraft aerodynamic forces and moments induced by the generator wake vortices are dangerous capable of determining the coordinates of the points of the danger areas on the basis of their selection under the hazard criteria chosen by the user; and

a unit for evaluation of the geometrical characteristics of the wake vortex danger areas capable of calculating them on the basis of information on the coordinates of points of the danger areas.

53. (Currently Amended): The system as claimed in claim 52, wherein said unit for determination of the wake vortex danger area geometrical characteristics in said warning subsystem in a device for determination of the danger area parameters is capable of approximating the danger area boundary.

54. (Currently Amended): The system as claimed in claim 23, wherein said warning subsystem includes a device for determination of the vortex generator danger area parameters, said device comprising:

a unit for an aircraft schematization capable of calculating the set of the aircraft geometrical characteristics necessary for evaluation of additional aerodynamic forces and moments induced by the generator wake vortices and acting on the aircraft on the basis of information on the aircraft configuration, coordinates, flight velocity, angles of pitch, yaw and roll;

a unit for evaluation of additional aerodynamic forces and moments acting on the aircraft at a given point and induced by the generator wake vortices, capable of calculating them on the basis of the saved information on the paths of the wake vortex points in the form of a set of trajectories of the vorticity area centers and the intensity of the generator wake vortices in the inertial frame, of the information on the aircraft configuration, position, flight velocity, angular rate in the inertial frame, and on the aircraft geometry;

a unit for estimation of a hazard level of the aerodynamic perturbations at the given point capable of estimating the hazard level on the basis of criteria chosen by the user;

a unit for determination of the points where the aircraft aerodynamic forces and moments induced by the generator wake vortices are dangerous capable of determining the coordinates of the points of the danger areas on the basis of their selection under the hazard criteria chosen by the user; and

a unit for evaluation of the geometrical characteristics of the wake vortex danger areas capable of calculating them on the basis of information on the coordinates of points of the danger areas.

55. (Currently Amended): The system as claimed in claim 54, wherein said unit for determination of the wake vortex danger area geometrical characteristics in said warning subsystem in a device for determination of the danger area parameters is capable of approximating the danger area boundary.